

PHYTO-GUARD™

and

PHYTO-Plus™

**Fungicide for improved powdery mildew control
in greenhouse cucumbers**

Saint-Edouard-de-Napierville, Quebec, CANADA,

2011

Efficacy and crop tolerance report

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1. INTRODUCTION

Powdery mildew (*Erysiphe cichoracearum* DC.) is one of the most important diseases for greenhouse cucumber in Eastern Canada. The powdery mycelium of this disease can cover the whole leaf surfaces very fast. That will reduce the potential for photosynthesis by leaves. This will lead to a reduction of yield.

In this trial, the efficacy at different rates, of mixtures including PHYTO-GUARD™ with or without X-Tend™, against powdery mildew were tested and compared with mixtures of a new product “PHYTO-Plus™” with or without X-Tend™ and also, with the commercial treatment of fungicides Nova™ alternating with Rhapsody™.

The observer noted phytotoxicity symptoms after application to assure that the use PHYTO-GUARD™ had no harmful effect on leaves and/or plants.

2. TRIAL OBJECTIVES

To determine efficacy and crop tolerance of mixtures of PHYTO-GUARD™ plus X-Tend™ and of mixtures of “PHYTO-Plus™” with or without X-Tend™ for control of powdery mildew in greenhouse cucumber.

3. GENERAL GROWTH CONDITIONS AND POWDERY MILDEW DEVELOPEMENTS

First sign of powdery mildew disease appeared on September 14. On that date, the cucumber plants were at four leaves. Powdery mildew spots per leaf were spread evenly among all plots over the experimental site. Therefore, that was the good timing for the first application on September 15. Afterward, the cucumbers plants and the powdery mildew disease did continued their growths and developments normally.

4. POWDERY MILDEW DEVELOPMENTS

The development of powdery mildew was steady without any specific peaks for the period of this trial. As mentioned previously, the first symptom of powdery mildew disease appeared on September 14.

5. APPLICATION SCHEDULE

The timing for the first application was based on the appearance of the first sign or spot of powdery mildew disease. That was on September 14. The other applications simply followed the conventional and regular spray program of 7-10 days intervals between treatments.

6. MATERIAL AND METHODS

6.A. EXPERIMENTAL SITE AND DESIGN

This trial was located within a greenhouse cucumber commercial field in the municipality of Saint-Edouard, Quebec, CANADA. Planting date was on June 6. GPS way point is 45°15.783' north and 73°29.201' west. The variety name is Straight eight and belonging to the regular type of cucumbers which are produced for fresh market. Study design was a randomized complete block design with four replicates. There were 3 staked plants per plot which give a dimension of 60 centimeters wide and 80 centimeters long per plot. The counts of powdery mildew were on the lower and upper leaves. There was a buffer empty zone between each plot.

6.B. SPRAY APPLICATIONS AND TREATMENTS LIST

All experimental applications have been done using CO₂ back pack sprayer. The sprayer boom of 50 centimeters wide had 1 nozzle. The nozzles were Tee Jet number T60-8002vs. Sprayer was set at 310 kilopascal air pressure. The volume of spray was at 600 L/ha.

Table 1 present the list of treatments according to plot number.

TABLE 1: LIST OF TREATMENTS ACCORDING TO PLOTS NUMBERS, ST.-EDOUARD, QUEBEC, CANADA, 2011.

Treatments numbers and names	Rate	Application codes	Plot number according to treatments			
1. Untreated Check	0 % v/v	ABC	101	207	306	404
2. PHYTO-GUARD™	1 % v/v	ABC	102	206	304	407
3. PHYTO-GUARD™ + X-Tend™	1 % v/v	ABC	103	205	302	406
	0,5 % v/v	ABC				
4. PHYTO-Plus™	1 % v/v	ABC	104	204	307	405
5. PHYTO-Plus™ + X-Tend™	1 % v/v	ABC	105	203	301	403
	0,5 % v/v	ABC				
6. Phyto-Guard	2 % v/v	ABC	106	202	305	401
7. Nova™ Rhapsody™	34 G/100 L	AC	107	201	303	402
	1.5 L/100 L	B				

6.C. APPLICATIONS TIMINGS

The application date were; September 15 and 22 and October 1, 2011.

6.D. ASSESSMENTS

The powdery mildew disease assessments were performed on each plot of the experimental site (28 plots). Assessments of disease were noted on September 14, 17, 19, 22 and 27 and October 1, 3 and 11. However, selective dates were presented in order to ease the reading and comprehension. This selection of specific dates is not biased with any other possible interpretation of comparisons between treatments from the entire trial.

6.D.1. PHYTOTOXICITY

The investigator did observations for phytotoxicity symptoms after each application for all plots.

6.D.2. POWDERY MILDEW

The main disease present was powdery mildew (*Erysiphe cichoracearum* DC.).

Counts of spots from powdery mildew disease were noted per leaf for ten leaves per plot. Moreover, the numbers of infected leaves multiply by 10 is ending up to percentages, i.e. the incidence, since assessments were done on 10 leaves per plot.

7. RESULTS AND DISCUSSION

7.A. PHYTOTOXICITY

There were **NO** phytotoxicity symptom on plots treated with treatments number 2 (PHYTO-GUARD™ at 1 % V/V without X-Tend™) and number 7 (Nova/Rhapsody). However, few tips of leaves had showed some phytotoxicities symptoms after the first application on plants treated with PHYTO-GUARD™ or PHYTO-Plus™. This indicates that the adding of X-Tend™ might cause phytotoxicity when spray volume is too high. The signs of phytotoxicity were on the tip of the leaves which retain mixture drops. Moreover, the next applications were applied using slightly lower spray volume. Then, no new phytoxicity symptoms have been observed for the second and third applications. Therefore, the spray volume is also a factor which can cause phytotoxicity. Spray solution should not remain on leaves for too long while grower is doing its spray application. The application of lower spray volume should avoid phytotoxicity.

7.B. FUNGICIDES EFFICACIES

On September 19, 22 and 27 and October 3 and 11, mean numbers of powdery spots per leaf were significantly lower in plots treated with PHYTO-GUARD™, PHYTO-Plus™ and Nova™/Rhapsody™ in comparison with the untreated plots. In overall, there were no obvious difference of efficacy between products, rates and mixtures (table 2).

TABLE 2: MEAN NUMBER OF POWDERY MILDEW SPOTS PER LEAF ACCORDING TO TREATMENTS, USE RATES AND DATES, ST.-EDOUARD, QUEBEC, CANADA, 2011.

Treatments names and use rates	Mean number of powdery mildew spots per leaf, according to treatments, use rates and dates				
	September 19	September 22	September 27	October 3	October 11
1. Untreated check	2.2 a	4.1 a	7.6 a	15.1 a	20.3 a
2. PHYTO-GUARD at 1 % V/V	0.8 b c	0.1 b c	0.6 b	0.4 b	6.2 b
3. PHYTO-GUARD at 1 % V/V + X-Tend at 0.5 % V/V	1.0 b	0.4 b c	0.2 b	1.0 b	5.7 b
4. PHYTO-Plus at 1 % V/V + X-Tend at 0.5 % V/V	0.6 b c	0.2 b c	0.3 b	0.4 b	5.7 b
5. PHYTO-Plus at 1.0 % V/V + X-Tend at 0.5 % V/V	0.0 c	0.0 c	0.1 b	0.6 b	6.1 b
6. Phyto-Guard at 2 % V/V	1.2 b	0.5 b c	0.5 b	0.3 b	1.0 b
7. Nova at 34 g/ 100 L or Rhapsody at 1,5 L / 100 L	0.9 b c	0.9 b	0.1 b	0.2 b	0.0 b
LSD (P=.05)	1.02	0.85	1.06	3.78	8.88
Standard Deviation	0.69	0.57	0.72	2.54	5.98
CV	72.54	65.91	54.85	99.88	93.07
Grand Mean	0.95	0.87	1.3	2.55	6.43
Bartlett's X2	5.536	10.822	25.206	39.394	10.883
P(Bartlett's X2)	0.354	0.055	0.001	0.001	0.054
Replicate F	0.795	0.738	0.414	0.627	0.467
Replicate Prob(F)	0.5126	0.05432	0.7448	0.6069	0.7091
Treatment F	3.785	26.160	59.677	18.912	4.899
Treatment Prob(F)	0.0129	0.0001	0.0001	0.0001	0.0039

Means followed by same letter do not significantly differ (P=.05. LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

On September 19, there were significantly lower mean number of powdery spots in plots treated with PHYTO-Plus™ + X-Tend™ in comparison with plots treated with the PHYTO-GUARD™

at 1% V/V + X-Tend™ (treatment 3) or plots treated with PHYTO-GUARD™ at 2% V/V (treatment 6). However, this interpretation might be wrong because the spatial distribution of early infection of powdery mildew is frequently heterogeneous within a field or site. This heterogeneity is explaining why throughout the assessments dates, there is a slight fluctuation in efficacy for the same treatment.

Other wrong interpretation due to this heterogeneity can easily be done for the results about the incidence, i.e. the percentages of infected leaves infected by powdery mildew (table 3).

TABLE 3: MEAN PERCENTAGES (%) OF INFECTED LEAVED BY POWDERY MILDEW, ACCORDING TO TREATMENTS, USE RATES AND DATES. ST.-EDOUARD. QUEBEC, CANADA. 2011.

Treatments names and use rates	Mean percentages (%) of infected leaves by powdery mildew, per plot, according to treatments. use rates and dates				
	September 19	September 22	September 27	October 3	October 11
1. Untreated check	55.0 % a	57.5 % a	52.5 % a	60.0 % a	70.0 % a
2. PHYTO-GUARD at 1 % V/V	32.5 % ab	5.0 % cd	12.5 % b	12.5 % b	37.5 % b
3. PHYTO-GUARD at 1 % V/V + X-Tend at 0.5 % V/V	37.5 % ab	10.0 % cd	5.0 % b	12.5 % b	30.0 % bc
4. PHYTO-Plus at 1 % V/V + X-Tend at 0.5 % V/V	25.0 % b	5.0 % cd	2.5 % b	10.0 % b	40.0 % ab
5. PHYTO-Plus at 1.0 % V/V + X-Tend at 0.5 % V/V	0.0 % c	0.0 % d	2.5 % b	7.5 % b	32.5 % b
6. Phyto-Guard at 2 % V/V	32.5 % ab	17.5 % bc	10.0 % b	5.0 % b	10.0 % bc
7. Nova at 34 g/ 100 L or Rhapsody at 1,5 L / 100 L	27.5 % b	25.0 % b	2.5 % b	5.0 % b	0.0 % c
LSD (P=.05)	24.08	14.94	12.31	15.15	30.02
Standard Deviation	16.21	10.06	8.29	10.20	20.21
CV	54.03	58.68	66.28	63.44	64.3
Grand Mean	30.0	17.14	12.5	16.07	31.43
Bartlett's X2	4.68	8.465	4.863	2.754	4.094
P(Bartlett's X2)	0.456	0.132	0.561	0.839	0.536
Replicate F	0.471	0.094	0.191	0.492	0.163
Replicate Prob(F)	0.7060	0.9623	0.9013	0.6920	0.9197
Treatment F	4.124	15.353	19.058	14.817	4.977
Treatment Prob(F)	0.0089	0.0001	0.0001	0.0001	0.0036

Means followed by same letter do not significantly differ (P=.05. LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

The second safe statement is; there were significantly higher mean percentages (%) of leaves infected by powdery mildew in untreated plots in comparison with plots treated using PHYTO-GUARD™, PHYTO-Plus™ or Nova/Rhapsody.

A strong trend indicates that infection of powdery mildew was lower in plots treated with PHYTO-Plus™ at the beginning of this disease. This early infection stage is basically assessment on September 19 and 22. This trend disappeared over time. Similar trial should be repeated to confirm this trend.

The adding of X-Tend™ in mixtures of PHYTO-GUARD™ did not improved disease control. Moreover, the adding of X-Tend™ in mixtures of PHYTO-Plus™ did improved disease control.

8. CONCLUSION AND SUMMARY

There were significantly more powdery mildew disease in untreated plots in comparison with plots treated using PHYTO-GUARD™, PHYTO-Plus™ or Nova/Rhapsody. Moreover, there was no clear difference of efficacy between products, rates and mixtures.

One must be careful with the spray volume while using PHYTO-GUARD™, PHYTO-Plus™ or X-Tend™. Some slight phytotoxicity symptoms have been observed with the use of one of these products under high spray volume. This phytotoxicity was caused by some drops of solutions which were remaining on tips of cucumbers leaves. However, NO phytotoxicity had been observed for the second and third applications because there were no excess of spray solution on the tips of leaves.

The first application had been applied when there were 0.3 spots of powdery mildew per leaf. This timing or threshold (0.3 spots per leaf) should be applied to assure good efficacy for control of powdery mildew disease in cucumbers with the use of PHYTO-GUARD™ and PHYTO-Plus™.

The use of adding X-Tend™ in PHYTO-GUARD™ mixtures was not advantageous to control powdery mildew of cucumber under greenhouse conditions. Moreover, use of PHYTO-Plus™ was better than PHYTO-GUARD™ to control the early infection stage of powdery mildew. Therefore, it would be wise to redo a similar trial to confirm these trends. These trends are;

1. No need to add X-Tend™ with PHYTO-GUARD™,
2. PHYTO-Plus™ seems to be better to control early stage of infection from powdery mildew,
3. Control of powdery mildew with the use of PHYTO-GUARD at 2% V/V ended up very excellent on October 11. On October 11, disease pressure was higher than at beginning of trial. Therefore, PHYTO-GUARD at 2% V/V might be better when disease pressure get higher.

9. APPENDIX: COMPLETE DATAS

TABLE 4: DATAS FOR MEAN NUMBERS OF POWDERY MILDEW SPOTS PER LEAF, ACCORDING TO PLOTS, TREATMENTS, USE RATES AND DATES, SAINT-EDOUARD. QUEBEC, CANADA, 2011.

Pest Type	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease
Pest Code	ERYSCI	ERYSCI	ERYSCI	ERYSCI	ERYSCI	ERYSCI	ERYSCI	ERYSCI	ERYSCI
Pest Scientific Name	Erysiphe cichoracearum	Erysiphe cichoracearum	Erysiphe cichoracearum	Erysiphe cichoracearum	Erysiphe cichoracearum	Erysiphe cichoracearum	Erysiphe cichoracearum	Erysiphe cichoracearum	Erysiphe cichoracearum
Pest Name	Powdery mildew of cucurbits	Powdery mildew of cucurbits	Powdery mildew of cucurbits	Powdery mildew of cucurbits	Powdery mildew of cucurbits	Powdery mildew of cucurbits	Powdery mildew of cucurbits	Powdery mildew of cucurbits	Powdery mildew of cucurbits
Description	# powdery spots/leaf	# powdery spots/leaf	# powdery spots/leaf	# powdery spots/leaf	# powdery spots/leaf	# powdery spots/leaf	# powdery spots/leaf	# powdery spots/leaf	# powdery spots/leaf
Part Rated	LEAF P	LEAF P	LEAF P	LEAF P	LEAF P	LEAF P	LEAF P	LEAF P	LEAF P
Rating Date	2011-09-14	2011-09-17	2011-09-19	2011-09-22	2011-09-27	2011-10-01	2011-10-03	2011-10-11	2011-10-11
Rating Type	MEAN	MEAN	MEAN	MEAN	MEAN	MEAN	MEAN	MEAN	MEAN
Rating Unit	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER
Sample Size, Unit	10 LEAF	10 LEAF	10 LEAF	10 LEAF	10 LEAF	10 LEAF	10 LEAF	10 LEAF	10 LEAF
Number of Subsamples	10	10	10	10	10	10	10	10	10
Pest Stage Majority	PRINFC	PRINFC	MYCELI	MYCELI	MYCELI	MYCELI	MYCELI	MYCELI	MYCELI
Assessed By	FC	FC	FC	FC	FC	FC	FC	FC	FC
SE Name	SEVERITY	SEVERITY	SEVERITY	SEVERITY	SEVERITY	SEVERITY	SEVERITY	SEVERITY	SEVERITY
Days After First/Last Applic.	-1 -1	2 2	4 4	7 7	12 5	16 9	18 2	26 10	26 10
ARM Action Codes									
Number of Decimals	1	1	1	1	1	1	1	1	1
Trt									
No.	1	4	8	11	14	17	20	23	
Type	CHK								
Treatment Name	Untreated Check								
Other Rate	0 % v/v								
Other Rate Unit	ABC								
Appl Code									
Plot	101	102	103	104	105	106	107	108	109
	207	206	205	204	203	202	201	200	199
	306	304	302	307	301	305	303	304	305
	404	407	406	405	403	401	402	404	405
	Mean =	0.3	1.6	2.2	4.1	7.6	9.8	15.1	20.3
	102	103	104	105	106	107	108	109	110
	206	205	204	203	202	201	200	199	198
	304	302	307	301	305	303	304	305	306
	407	406	405	403	401	402	404	405	406
	Mean =	0.4	0.5	0.8	0.1	0.6	1.5	0.4	6.2
	103	104	105	106	107	108	109	110	111
	205	204	203	202	201	200	199	198	197
	302	307	301	305	303	304	305	306	307
	406	405	403	401	402	404	405	406	407
	Mean =	0.3	0.7	1.0	0.4	0.2	3.9	1.0	5.7
	104	105	106	107	108	109	110	111	112
	204	203	202	201	200	199	198	197	196
	307	301	305	303	304	305	306	307	308
	405	403	401	402	404	405	406	407	408
	Mean =	0.3	0.2	0.6	0.2	0.3	1.2	0.4	5.7
	105	106	107	108	109	110	111	112	113
	203	202	201	200	199	198	197	196	195
	301	307	301	305	303	304	305	306	307
	403	401	402	404	405	406	407	408	409
	Mean =	0.3	0.1	0.0	0.0	0.1	0.3	0.6	6.1
	106	107	108	109	110	111	112	113	114
	202	201	200	199	198	197	196	195	194
	305	301	307	301	305	303	304	305	306
	401	403	401	402	404	405	406	407	408
	Mean =	0.5	1.0	1.2	0.5	0.5	1.4	0.3	1.0
	107	108	109	110	111	112	113	114	115
	201	200	199	198	197	196	195	194	193
	303	307	301	305	303	304	305	306	307
	402	401	402	404	405	406	407	408	409
	Mean =	0.3	0.8	0.9	0.9	0.1	0.5	0.2	0.0

TABLE 5: DATAS FOR MEAN PERCENTAGES (%) OF INFECTED LEAVES BY POWDERY MILDEW, ACCORDING TO PLOTS, TREATMENTS, USE RATES AND DATES, ST-EDOUARD, QUEBEC, CANADA. 2011.

Pest Type	D Disease		D Disease		D Disease		D Disease		D Disease		D Disease		D Disease							
Pest Code	ERYSCI		ERYSCI		ERYSCI		ERYSCI		ERYSCI		ERYSCI		ERYSCI							
Pest Scientific Name	Erysiphe cichoracearum		Erysiphe cichoracearum		Erysiphe cichoracearum		Erysiphe cichoracearum		Erysiphe cichoracearum		Erysiphe cichoracearum		Erysiphe cichoracearum							
Pest Name	Powdery mildew of cucurbits		Powdery mildew of cucurbits		Powdery mildew of cucurbits		Powdery mildew of cucurbits		Powdery mildew of cucurbits		Powdery mildew of cucurbits		Powdery mildew of cucurbits							
Description	% of leaves infected		% of leaves infected		% of leaves infected		% of leaves infected		% of leaves infected		% of leaves infected		% of leaves infected							
Part Rated	LEAF P		LEAF P		LEAF P		LEAF P		LEAF P		LEAF P		LEAF P							
Rating Date	2011-09-14		2011-09-17		2011-09-19		2011-09-22		2011-09-27		2011-10-01		2011-10-03							
Rating Type	PESINC		PESINC		PESINC		PESINC		PESINC		PESINC		PESINC							
Rating Unit	%		%		%		%		%		%		%							
Sample Size, Unit	10 LEAF		10 LEAF		10 LEAF		10 LEAF		10 LEAF		10 LEAF		10 LEAF							
Number of Subsamples	1		1		1		1		1		1		1							
Pest Stage Majority	PRINFC		PRINFC		PRINFC		PRINFC		PRINFC		PRINFC		PRINFC							
Assessed By	FC		FC		FC		FC		FC		FC		FC							
SE Name	INCIDENCE		INCIDENCE		INCIDENCE		INCIDENCE		INCIDENCE		INCIDENCE		INCIDENCE							
Days After First/Last Applic.	-1 -1		2 2		4 4		7 7		12 5		16 9		18 2							
ARM Action Codes	TIO[1]		TIO[4]		TIO[8]		TIO[11]		TIO[14]		TIO[17]		TIO[20]							
Number of Decimals	1		1		1		1		1		1		1							
Trt	Treatment	Other	Other	Appl	3		6		10		13		16		19		22		25	
No.	Type	Name	Rate	Rate Unit	Code	Plot														
1	CHK	Untreated Check	0 % v/v	ABC	101	20.0	60.0	70.0	60.0	60.0	60.0	50.0	70.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
					207	10.0	50.0	60.0	60.0	60.0	60.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	90.0
					306	20.0	40.0	30.0	60.0	60.0	50.0	50.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
					404	20.0	30.0	60.0	50.0	40.0	50.0	50.0	60.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
						Mean =	17.5	45.0	55.0	57.5	52.5	50.0	60.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
2	FUNG	Phyto-Guard	1 % v/v	ABC	102	20.0	10.0	10.0	0.0	0.0	30.0	20.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
					206	20.0	20.0	40.0	0.0	10.0	30.0	0.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
					304	30.0	50.0	50.0	10.0	30.0	30.0	10.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
					407	30.0	20.0	30.0	10.0	10.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
						Mean =	25.0	25.0	32.5	5.0	12.5	27.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	37.5
3	FUNG	Phyto-Guard	1 % v/v	ABC	103	30.0	30.0	70.0	30.0	10.0	60.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
	ADJ	X-Tend	0.5 % v/v	ABC	205	10.0	10.0	20.0	10.0	0.0	10.0	0.0	10.0	0.0	10.0	0.0	10.0	0.0	10.0	10.0
					302	20.0	40.0	30.0	0.0	10.0	20.0	30.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
					406	30.0	30.0	30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
						Mean =	22.5	27.5	37.5	10.0	5.0	22.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	30.0
4	FUNG	Phyto-Plus	1 % v/v	ABC	104	20.0	20.0	50.0	10.0	10.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	70.0
					204	20.0	10.0	20.0	10.0	0.0	0.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	20.0
					307	20.0	10.0	20.0	0.0	0.0	10.0	0.0	10.0	0.0	10.0	0.0	10.0	0.0	10.0	20.0
					405	20.0	0.0	10.0	5.0	0.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	50.0
						Mean =	20.0	10.0	25.0	5.0	2.5	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	40.0
5	FUNG	Phyto-Plus	1 % v/v	ABC	105	30.0	10.0	0.0	0.0	0.0	20.0	0.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
	ADJ	X-Tend	0.5 % v/v	ABC	203	30.0	10.0	0.0	0.0	0.0	30.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
					301	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0
					403	10.0	0.0	0.0	0.0	10.0	10.0	0.0	10.0	20.0	20.0	20.0	20.0	20.0	20.0	10.0
						Mean =	20.0	5.0	0.0	0.0	2.5	12.5	7.5	32.5	32.5	32.5	32.5	32.5	32.5	32.5
6	FUNG	Phyto-Guard	2 % v/v	ABC	106	30.0	20.0	30.0	0.0	0.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
					202	40.0	40.0	10.0	10.0	10.0	40.0	10.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
					305	40.0	50.0	50.0	20.0	10.0	30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
					401	30.0	40.0	40.0	40.0	20.0	20.0	0.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
						Mean =	35.0	37.5	32.5	17.5	10.0	25.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
7	FUNG	Nova	34 g/100 l	AC	107	10.0	10.0	20.0	20.0	10.0	30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	FUNG	Rhapsody	1.5 l/100 l	B	201	40.0	40.0	30.0	30.0	0.0	10.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	0.0
					303	20.0	40.0	30.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
					402	20.0	20.0	30.0	30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
						Mean =	22.5	27.5	27.5	25.0	2.5	10.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0